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THE RHODE ISLAND MEDICAL JOURNAL

Volume XXIV AUGUST, 1941 Number 8

SEX HORMONES

CLINICAL APPLICATION

WILLARD O. THOMPSON, M.D.
AND
NORRIS J. HECKEL, M.D.
CHICAGO, ILLINOIS

Hypogonadism may be of two types, primary and secondary. The primary type is caused by some defect in the gonads themselves while the secondary type is caused by lack of adequate stimulation of the gonads, chiefly by the anterior lobe of the pituitary. In a similar manner, two types of therapy may be employed in hypogonadism depending upon the capacity of the gonads to respond. Stimulation therapy with some suitable gonadotropic material may be used whenever the testes or ovaries are capable of responding to stimulation. Substitution therapy with male or female sex hormone is indicated in all cases of primary hypogonadism. It is also indicated in some cases of secondary hypogonadism because very potent preparations of the male and female sex hormones are available but many gonadotropic preparations are not very effective.

Functions of the Sex Hormones

Normal sex function depends upon a delicate balance between the anterior lobe of the pituitary and the gonads. The anterior lobe has at least two gonadotropic effects which are commonly ascribed to two gonadotropic hormones. One is follicle stimulating and causes the development of graafian follicles in the ovary and influences the function of the seminiferous tubules in the testis. The other is luteinizing and is responsible for the development of the corpus luteum in the ovary and stimulates the interstitial cells of the testis to produce male sex hormone. The production of adequate quantities of sex hormone is thus dependent upon the integrity of the anterior lobe of the pituitary. The sex hormones themselves are responsible for the development of the secondary sex characteristics, which *in the male,* include:

1. Development of the external genitalia.
2. Growth and function of the prostate gland.
3. Masculine distribution of hair.
4. Lowering of the pitch of the voice.
5. Normal configuration of the skeleton, with normal proportions between the trunk and extremities and between the shoulders and hips.
6. Increase in size and firmness of the muscles.
7. Normal emotional reactions.

In the female, these include:

1. Development of the external genitalia.
2. Growth and function of the uterus.
3. Development of the breasts.
4. Female distribution of hair.
5. Normal configuration of the skeleton. When normal function of the gonads is absent during the age of puberty, the trunk becomes short and the extremities long. Other skeletal proportions are affected, such as width of the pelvis and the breadth of the shoulders and chest.
6. Characteristic feminine distribution of fat.
7. Normal emotional reactions.

Any material which produces the effects of the male sex hormone is called an androgen and any material which produces the effects of the female sex hormone is called an estrogen. Various androgenic and estrogenic materials are available, both natural and artificial. The natural androgens and estrogens both appear to be derived from cholesterol. The most potent androgenic material thus far isolated is testosterone, which is used in the form of testosterone propionate: and the most potent natural estrogen is estradiol, which is used in the form of some suitable ester such as the benzoate or the dipropionate. Both estradiol and testosterone, although recoverable from the ovary and testis respectively, are for commercial purposes made synthetically.

From the Departments of Medicine and Surgery, Rush Medical College of the University of Chicago and the Presbyterian Hospital, Chicago.

Read before the one hundred and thirtieth annual meeting of the Rhode Island Medical Society, Newport, R. I., May 29, 1941.

Indications for Male Sex Hormone
(TESTOSTERONE PROPIONATE)

As already pointed out, the administration of male sex hormone represents substitution therapy and is therefore indicated in cases of hypogonadism in which the testes are incapable of responding to stimulation, viz.:

1. Primary hypogonadism, including
   a. All cases of eunuchism
   b. Most cases of eunuchoidism
2. Secondary hypogonadism, when stimulation therapy is ineffective. This applies to some cases of the Fröhlich syndrome, chromophobe adenoma of the pituitary and pituitary dwarfism. However, stimulation therapy is preferable in most of them.
3. Impotence from deficiency of testes.
4. Male climacteric (?).

Treatment of Eunuchism and Eunuchoidism

Three methods may be employed:

1. Parenteral administration of testosterone propionate (25-50 mgm. daily).
2. Oral administration of methyl testosterone (150-200 mgm. daily).
3. Implantation of pellets.

These doses are continued for one year or longer until the maximum growth of the genitalia, skeleton and body hair occurs. Regression is then prevented by the administration of a smaller maintenance dose for the rest of the patient's life. In occasional cases of the Fröhlich syndrome in which substitution therapy is indicated, the doses required are the same.

In eunuchs and in eunuchoid men who are completely undeveloped sexually the administration of adequate doses of male sex hormone will produce the following changes:

"1. The gradual appearance of the secondary sex characteristics of the adult male. The infantile penis may become normal in size, the prostate develops, and hair grows in the pubic and axillary regions, on the face and on other parts of the body. The pitch of the voice rapidly assumes its characteristic masculine quality. Erections and seminal emissions become very frequent. Priapism has been described.

2. A marked increase in appetite and body weight (as much as 40 pounds (18 Kg.) in four months). The patients do not become obese but show an enormous increase in the size, firmness and strength of muscles. The material appears to stimulate development of the muscular characteristics of the normal male, whereas in the eunuchoid state the muscle development resembles that of the female.

3. An increase in basal metabolism of as much as 30 points. In our patients who received large doses, the rate was raised above normal.

4. An increase in vigor and sense of well being. The patients are capable of and have the initiative to do much more work, both mental and physical. They seek and become much more proficient in games involving muscle coordination and physical stamina.

5. Loss of their effeminate characteristics. Whereas before treatment they tend to run away from arguments and physical combat, after treatment they tend to welcome opportunities to demonstrate their physical prowess."[1]

In order to produce normal contour of the skeleton, it is necessary to start treatment just before the age of puberty, namely at the age of 10 to 12 years.

Nothing is more dramatic than the changes which may be produced in such patients with male sex hormone. It represents literally a modern miracle.

Dwarfism

One of the most interesting effects of both chorionic gonadotropin and testosterone propionate in young boys is stimulation of skeletal growth. As long as the epiphyses are open the bones may be made to grow at a very rapid rate. Up to the present time there is no evidence that premature closure of the epiphyses is caused by either material, in spite of reports in the literature to the contrary. We have observed similar changes in female patients with female sex hormone but the data are not yet extensive enough to say whether the female sex hormone is as potent a stimulator of growth as the male. In boys the male sex hormone may be said to be the most effective growth promoting agent which we have at the present time. This has an important clinical application, since there is no potent preparation of growth factor of the pituitary available at present. Thus in some boys with pituitary dwarfism in whom other methods of treatment are ineffective, a considerable amount of skeletal growth may be associated with genital growth following the administration of large doses of either testosterone propionate or chorionic gonadotropin. We have also observed some growth in girls with pituitary dwarfism following the administration of female sex hormone. The increase

in height is, of course, associated with an increase in weight and with the development of the musculature of the body.

In boys with the Fröhlich syndrome the changes which occur as a result of administration of large doses of testosterone propionate cause a complete change in body contour, so that the Fröhlich characteristics disappear.

Impotence

Impotence is a symptom, not a disease. It is usually the result of some neurogenic or psychogenic factor. Glandular therapy is indicated only when the function of the testes is impaired by castration, atrophy, trauma or infection. In such instances, testosterone propionate may be employed in a dose of 25 mgm. per day, administered parenterally, with excellent results.

Contraindications for Male Sex Hormone

Male sex hormone is contraindicated in:

1. Cases of hypogonadism in which the testes are capable of responding adequately to stimulation, viz.:
   a. Most cases of undescended testes, unless associated with eunuchoidism.
   b. Most cases of hypogonadism secondary to hypopituitarism, including the Fröhlich syndrome.
2. Benign prostatic hypertrophy. Since the male sex hormone is responsible for the development of the prostate, it is difficult to see how its administration would be helpful in this condition.
3. Sterility. It causes azoospermia.
4. Old men with arteriosclerotic or hypertensive heart disease.
5. Impotence, unless caused by testicular deficiency.
6. Most cases of menorrhagia, dysmenorrhea and the menopause.

Harmful Effects of Male Sex Hormone

The following harmful effects of the administration of male sex hormone have been noted:

1. Injury to the normal testis with production of azoospermia. Recovery from such injury may follow omission of treatment.
2. Symptoms of heart failure in old men.
3. Pitting edema of the lower legs.
4. Acne vulgaris.
5. Hypermetabolism (as much as 35 per cent above normal).
6. Hypertrichosis in women.

Indications for Female Sex Hormone

The administration of female sex hormone also represents substitution therapy and is used primarily in:

1. Primary hypogonadism, including
   a. The menopause — spontaneous and artificial
   b. Primary amenorrhea.
2. Some cases of secondary hypogonadism (stimulation therapy not as effective as in male).
3. Some cases of dysmenorrhea.
4. Frigidity from ovarian deficiency.
5. Gonorrheal vaginitis (?).
6. Cystic mastitis (?).
7. Benign prostatic hypertrophy (???).

The Treatment of the Menopause

This may be accomplished in several ways:

1. Parenteral administration of a suitable estrogenic material (e.g., from 1 to 5 mgm. of α-estradiol benzoate or dipropionate every 7 to 14 days).
2. Oral administration of stilbestrol (usual dose from 1 to 2 mgm. daily).
3. Oral administration of a suitable form of some other synthetic or natural estrogen.
4. Implantation of pellets of estradiol.

Estrogenic material should not be administered during uterine bleeding.

Treatment of Primary Amenorrhea

The treatment is essentially the same as for the menopause except that larger doses of estrogenic material may be necessary. After maximum development of the secondary sex characteristics has been produced it is necessary to continue treatment for the rest of the patient's life, just as in eunuchoidism. The results are often dramatic and may be produced either with female sex hormone or with stilbestrol.

The changes produced in women with primary hypogonadism with female sex hormone correspond to those observed in eunuchoid men following the administration of male sex hormones. In such women large doses of estrogenic material produce the following effects[2]:

1. Development of the secondary sex characteristics of the female including the growth of the external and internal genitalia, the development of the breasts, the growth of axillary and pubic hair and the onset of intermittent uterine bleeding resembling menstruation.

2. A moderate increase in body weight, most noticeable in the buttocks, thighs and hips, augmenting the feminine appearance.

3. An increase in muscle strength, bodily vigor and mental acumen.

4. An increase in sex consciousness with a corresponding change in emotional status.

Two changes deserve special attention, namely, the growth of the uterus and of the breasts. The infantile uterus becomes normal in size, and the completely undeveloped breasts may assume the proportions of those of the normal adult. Not only do the nipples and areolae develop but the whole breast area grows. This observation is important because in some animals progesterone is necessary for the growth of the alveoli, estradiol being concerned more with the development of the duct system. It is of great interest that similar changes may be produced with the oral administration of a new synthetic estrogen, stilbestrol. The pigmentation of the nipples is greater following the administration of this material than following that of the natural estrogens, but it will produce fully as great development of the breasts and other secondary sex characteristics.

Contraindications for Female Sex Hormone

It is contraindicated under the following circumstances:

1. When the function of the ovaries is normal.
2. When uterine fibroids are present.
3. During bleeding from the uterus.
4. In cases of secondary amenorrhea in which the ovaries can be stimulated.

Harmful Effects of Female Sex Hormone

In the female it may produce:

1. Injury to the normal ovary.
2. Excessive bleeding from the uterus.
3. Pitting edema of the lower extremities.

It has carcinogenic properties in some laboratory animals but there is no good evidence that it produces carcinoma in man.

In the male it may produce:

1. Injury to the normal testis and azoospermia.
2. A great decrease in the amount of seminal fluid.
3. Enlargement of the breasts.
4. Impotence.

General Rule for Treatment of Hypogonadism

In any case of hypogonadism in either sex, try stimulation therapy first and resort to substitution therapy if it fails. As already indicated, treatment with sex hormones* is substitution therapy and treatment with various gonadotropic principles,† stimulation therapy.

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2. Thompson, W. O., Thompson, P. K. and Taylor, S. G. III: Production of Sexual Maturity in Young Women with Primary Amenorrhea. Transactions Assn. Amer. Phys. 1941. In Press.

*Our observations have been made with Oreton and Methyl Testosterone of the Schering Corporation (male sex hormone): and with Progynon-B of the Schering Corporation, Di-Ovocylin of Ciba Pharmaceutical Products (female sex hormone), and Stilbestrol of E. R. Squibb & Sons and of Frederick Stearns & Company (estrogenic material).

†We have used A. P. L. of Ayerst, McKenna & Harrison, Follutein of E. R. Squibb & Sons, Pranturon of Schering Corporation, and Korotrin of Winthrop Chemical Company (chorionic gonadotropin): Anteron of the Schering Corporation and Gonadogen of the Upjohn Company (gonadotropic principle from the serum of the pregnant mare): and the Chappell and Armour preparations of pituitary gonadotropin.

The physician in attendance is in charge of the case and is responsible for the treatment of the patient. Consequently, he may prescribe for the patient at any time, and is privileged to vary the mode of treatment outlined and agreed on at a consultation whenever, in his opinion, such a change is warranted. However, at the next consultation, he should state his reasons for departing from the course decided on at the previous conference. When an emergency occurs during the absence of the attending physician, a consultant may provide for the emergency and the subsequent care of the patient until the arrival of the physician in charge, but should do no more than this without the consent of the physician in charge.

From the Code of Ethics of the A. M. A.

THE NEWPORT SOJOURN OF BISHOP BERKELEY

JOHN E. DONLEY, M.D.
222 BROADWAY, PROVIDENCE, R. I.

On January 23, 1729, Reverend Mr. Honeyman, Rector of Trinity Church in Newport, was conducting divine service. While he was still in the pulpit a note was handed to him which he opened immediately and read to the congregation. The note informed him that Reverend George Berkeley, Dean of Derry, with his family and some friends had arrived, after a voyage of four months, in the west passage of the harbor and would shortly make his way to the town. Upon the reception of this news the whole congregation of men and women repaired to the wharf where they welcomed the Dean upon his landing. Thus began the two and one-half years sojourn of the illustrious George Berkeley in Newport.

The Dean received an enthusiastic reception and made a favorable impression upon the citizens of the town, for shortly after his coming the reporter of the New England Courier described Berkeley as the "great dignitary of the Church of England" and went on to describe him as a gentleman of middle stature, of an agreeable, pleasant and erect aspect who behaved "after a very complaisant manner." Berkeley expressed his intention of remaining about three months in Newport, at that time a town of some six thousand inhabitants. He described Newport as the "most thriving, flourishing place in America"; and although this is, perhaps, an exaggeration, nevertheless, the town presented many signs of growth and of increasing prosperity. It was an important center for the Society for the Propagation of the Gospel in Foreign Parts and was justly proud of Trinity Church reputed, at that time, to be the most beautiful timber structure in America. In Trinity Church Berkeley subsequently preached several times and became one of its benefactors by the presentation of an organ. It is interesting to inquire why Berkeley came to Newport and to indicate the reason which induced him to remain here not three months, but approximately two and one-half years.

Read before the one hundred and thirtieth Annual Meeting of the Rhode Island Medical Society, Newport, May 28-29, 1941.

In 1722, Berkeley wrote to his friend Percival that he had made up his mind to spend the rest of his days in the island of Bermuda. The South Sea Bubble had burst disastrously and Europe, he thought, was doomed. Holding, in the words of his famous stanza that "Westward the course of empire takes its way," he resolved to make a supreme effort to Christianize the West. He would build a St. Paul's College in the romantic, salubrious, unspoiled isles of Bermuda of which the Poet Waller had sung with enthusiasm. The sons of American settlers and of the Indians would be brought there from the mainland, and when imbued with a sound Christian education they would be sent back to America to evangelize their homeland. Among many reasons for selecting Bermuda as the place for his proposed college Berkeley set forth that it would be an excellent situation because in addition to its delightful climate, no one enriching commodity was there produced, such as might tempt parsons to turn traders, and also because of the mild character of the people. Furthermore, he was attracted by the island because whores, vagabonds and transported criminals had never settled in Bermuda. In 1725, he began his propaganda for the college by publishing a tract entitled, Proposal for the Better Supplying of Churches in our Foreign Plantations. The project received the approbation and financial support of Berkeley's friends, and the considerable sum of 3,400 pounds was raised by public subscription. The English Government itself became interested and promised to contribute 20,000 pounds toward the foundation of the college. A few months before his leaving somewhat suddenly for America, Berkeley wrote to his friends that he had married Miss Foster, the daughter of a Chief Justice and former Speaker of the Irish House of Commons. "I chose her," he said, "for her qualities of mind and her unaffected liking for books." She accompanied the Dean to America with great cheerfulness to "live a plain farmer's life and wear stuff of her own spinning-wheel."

In the summer of 1729, after a visit to Dr. MacSparran in the Narragansett country, Berkeley

returned to Newport but did not remain long in the town. He had purchased a farm of something less than one hundred acres at Sachuest Beach and on it he built a wooden house still in existence which he named Whitehall. While awaiting news of the English Parliament's decision with respect of the promised money for his college, Berkeley enjoyed at Whitehall a period of repose, leading a plain farmer's life,. interspersed with occasional visits to Newport. Berkeley traveled little and never visited Boston except when he took ship there on his return to Europe. His friends, however, preferred the attractions of Boston to those of Newport so that Berkeley and his wife were generally very much alone after he took up his residence at Whitehall. Writing to his friend Percival in the spring of 1730, he says, "We have passed the winter in profound solitude, all my companions having been allured four or six months ago to Boston, the great place of pleasure and resort in these parts, where they still continue. After my long fatigue of business this retirement is very agreeable to me; my wife loves a country life and books. So well as to pass her time contentedly and cheerfully without any other conversation than her husband and the dead." All of us know the Hanging Rocks and the almost obliterated winding path along the southern face of them leading to the alcove where, according to tradition, Berkeley meditated upon what later became his celebrated book Alciphron or the Minute Philosophers which he published in London shortly after his return from America. Although his plans for a college in Bermuda came ultimately to naught, Berkeley left his impress upon the cultural development of Newport and of the colonies, —an influence it would be worth while to discuss were not time so pressing.

In the philosophical firmament Berkeley is a star of the first magnitude; but to us physicians he is perhaps equally interesting as the great protagonist of tar-water. Returning to his native Ireland as the Bishop of Cloyne, he published in 1744, a unique work entitled, Philosophical reflexions and Inquiries concerning the Virtues of Tar-Water. It met with such immediate success that in a few weeks he was required to print a second edition, now with the famous title: Siris: A Chain of Philosophical Reflexions and Inquiries Concerning the Virtues of Tar-Water, And Divers other Subjects connected together and arising one from another. The second Edition, improv'd and corrected by the Author. The book was published in Dublin and printed by Marg't Rhames for R. Gunne, Bookseller, in Capel Street.

It has long been the custom to smile at Berkeley and his tar-water as being but another shining example of the way in which a brilliant layman's mind can be misled in matters medical. But the affair is not so simple as at first sight it may appear; for when we consider the social, intellectual and especially the medical climate in which Berkeley lived, his praise of tar-water seems to be not less fantastic than was the popular devotion to the remedies for the "uric acid diathesis" of a generation ago or the commercialized vitamin craze of our own day. In Cloyne, the years 1739, 1740 and 1741 were black periods of famine which the Bishop tried to alleviate by founding a work-house and by distributing sums of money, but all to little purpose. In the wake of famine came pestilence which, for the most part, took the form of dysentery which decimated the people especially in the county of Cork. As Berkeley declared, "the distress of the sick and poor is endless. The havoc of mankind in the counties of Cork and adjacent places hath been incredible. The nation probably will not recover the loss in a century. The other day I heard one from the county of Limerick say that whole villages were entirely dispopulated. About two months since I have heard Sir Richard Cox say that five hundred were dead in the parish where he lives, though in a country I believe not very populous." Confronted by these tragic conditions the kindly Bishop naturally sought a remedy and believed that he had found it. "I was not," he says, "so well able to say by what method best to take in this epidemical bloody flux, that distemper not having been very rife in this town till very lately, though it had made a great progress in other parts of this county. But this week I have cured several by the following course; than which nothing is easier or cheaper. I give to grown people a heaped spoonful of rosin powdered fine, in a little broth; this is repeated at the distance of six or eight hours till the blood is staunched. To children I give a bare spoonful not heaped. A farthing's worth of rosin (if I may judge from my own short experience) will never fail to stop the flow of blood. . . ." Again he says, "I believe tar-water might be useful to prevent (or to perfect the cure

of) such an evil; there being, so far as I know or can judge, no more powerful corrector of putrid humors. But I am making a further inquiry, and more experiments concerning the virtues of that medicine. . . ." A week later he declares tar-water a success. He is studying the available books on medicine and in a letter to a friend he remarks, "I write in no small confusion and distress; my family having been ill of an epidemical fever that rages in these parts; and I being the only physician to them and my poor neighbors."

The fury of the epidemic abated, but Berkeley continued his experiments with tar-water. On January 12, 1742, he writes to another friend, "I would say, shun late hours, drink tar-water, and bring back . . . a good stock of health and spirits. . . ." The Bishop, having been convinced by his experience of the extraordinary value of tar-water, began to consider its possible use in many kinds of disease. As his successful experiments multiplied, he read more books on medicine and especially on chemistry to find, if he could, the reasons for the value of his almost miraculous remedy. After two or three years of study and experiments he published his famous work which, as I have said, met with such immediate success that in a few weeks he was required to publish a second edition.

Siris begins with a description of the medicinal virtues and the method of preparation of tar-water. Tar, he tells us, is obtained from all sorts of pines or firs from which it can be drawn off in various ways. The juice of firs and pines consists of aqueous, oily and saline particles. Pines and such-like trees are especially rich in "acid or vegetable soul." The juice, acted on by the sun, is strained into a balsam; the "vegetable soul" or acid is drawn off by water and a "most noble medicine" is the result.

The benevolent Bishop's faith in his remedy is illustrated by the first paragraph of Siris. He writes, "For introduction to the following piece I assure the reader that nothing could, in my present situation, have induced me to be at the pains of writing it, but a firm belief that it would prove a valuable present to the public. What entertainment soever the reasoning or notional part may afford the mind, I will venture to say, the other part seemeth so surely calculated to do good to the body that both must be gainers. For if the lute be not well tuned, the musician fails of his harmony. And in our present state, the operations of the mind so far depend on the right tone or good condition of its instrument, that anything which greatly contributes to preserve or recover the health of the body is well worth the attention of the mind. These considerations have moved me to communicate to the public the salutary virtues of tar-water; to which I thought myself indispensibly obliged by the duty every man owes to mankind. And, as effects are linked with their causes, my thoughts on this low but useful theme lead to farther inquiries and those on to others remote, perhaps, and speculative, but, I hope, not altogether useless or unentertaining." To his friend Prior Berkeley wrote, "I do not say that it is a panacea; I only expect it to be so; time and trial will show." Again he says, "As the old philosopher cried aloud from the housetops to his fellow citizens: Educate your children! —so, I confess, if I had a situation high enough and a voice loud enough I would cry out to all the valetudinarians on earth: Drink Tar-Water." "This safe and cheap medicine," continues the Bishop, "suits all circumstances and all constitutions, operating easily, curing without disturbing, raising the spirits without depressing them, a circumstance that deserves repeated attention, especially in these climates where strong liquors so fatally and so frequently produce those very distresses they are designed to remedy; and, if I am not misinformed, even among the ladies themselves, who are truly much to be pitied. Their condition of life makes them a prey to imaginary woes which never fail to grow up in minds unexercised and unemployed. To get rid of these, it is said, there are who betake themselves to distilled spirits. And it is not improbable they are led gradually, to use of those poisons by a certain complaisant pharmacy, too much used in the modern practice,—palsy drops, poppy cordial, plague-water, and such like, which being in truth nothing but drams disguised, yet coming from apothecaries are considered only as medicines. This same water will also give charitable relief to the ladies who often want it more than the parish poor; being many of them never able to take a good meal, and sitting pale, puny, and forbidden, like ghosts at their own table, victims of vapors and indigestion." "It is a great maxim for health, that the juices of the body be kept fluid in a due proportion. Therefore, the acid volatile spirit in tar water, at once atten-

uating and cooling in a moderate degree, must greatly conduce to health, as a mild salutary deobstruent, quickening the circulation of the fluids without wounding the solids, thereby gently removing or preventing those obstructions, which are the great and general cause of most chronical diseases; in this manner answering to the antihysterics, assa faetida, galbanum, myrrh, amber, and in general, to all the resins and gums of trees or shrubs useful in nervous cases." "Warm water is itself a deobstruent. Therefore the infusion of tar drunk warm, is easier insinuated into all the nice capillary vessels, and acts, not only by virtue of the balsam, but also by that of the vehicle. It's taste, it's diuretic quality, it's being so great a cordial shew the activity of this medicine. And at the same time that it quickens the sluggish blood of the hysterical, its balsamic oily nature abates the too rapid motion of the sharp thin blood in those who are hectic. There is a lentour and smoothness in the blood for healthy strong people, on the contrary, there is often an acrimony and solution in that of weakly morbid persons. The fine particles of tar are not only warm and active, they are also balsamic and emollient, softening and enriching the sharp and vapid blood, and healing the erosions occasioned thereby in the blood vessels and glands." "Tar water layeth under no restraint either as to diet, hours, or employment. A man may study or exercise or repose, keep his own hours, pass his time either within or without, and take wholesome nourishment of any kind." "From my representing tar water as good for so many things, some perhaps may conclude it is good for nothing. But charity obligeth me to say what I know, and what I think, howsoever it may be taken. Men may censure and object as they please, but I appeal to time and experiment. Effects misimputed, cases wrong told, circumstances overlooked, perhaps too, prejudices and partialities against Truth, may for a time prevail and keep her at the bottom of her well, from whence nevertheless she emergeth sooner or later, and strikes the eyes of all who do not keep them shut."

After the publication of Siris, Berkeley found himself famous not in Ireland and England only, but throughout the whole of western Europe, and the medical portions of Siris were translated into several foreign languages. In London and Dublin establishments were opened for the drinking of tar water and young Edmund Burke, a student at Trinity College in Dublin, wrote to Richard Sheridan in 1774, "I am sure tar is the universal medicine here notwithstanding the opposition of its enemies, the physicians." And thus did Bishop Berkeley, one-time gracious master of Whitehall, add his famous panacea to the long list of the cures that failed.

A COMMUNICATION ON SELECTIVE SERVICE

Ira C. Nichols, M.D.
Butler Hospital
and
Harold W. Williams, M.D.
State Hospital for Mental Diseases

Representatives of the Army and Navy at the recent meeting of the American Psychiatric Association pointed out that medical men must be more cognizant than they have been thus far of the fact that they are selecting men for a specialized vocation. Soldiering is a vocation requiring good physical stamina, but, perhaps more important, certain personality characteristics. For this job a man should be of reasonably stable temperament; able to profit from experience; capable of tolerating the give and take of a group, living and working intimately together; relatively free from morbid fears and anxieties with respect to himself and in relationship to himself and to others, and of sufficient intelligence to understand and carry out reasonably complex orders.

The experience of the first World War showed that induction of those not vocationally suited produced one of the main and most trying problems both in this country and in the Expeditionary Force in France. These unsuited individuals broke down under stress, developing various types of mental disorders. The efficiency of the armed services was impaired, many hospital beds were needlessly occupied, and many of these misfits are to this day being cared for by the Veterans' Hospital Facility. Thus far, in the present Selective Service System, only about 5% have been rejected as vocationally unfit. The figure should be, in terms of the prevalence of

neurotic disorder, nearer 15%. That means 10% are not being screened out. The armed forces, then, have already been burdened to this degree with unqualified material.

You, the medical members of the Local Draft Boards, have the capacity and the knowledge to ferret out this missing 10%. Of fundamental assistance is your familiarity with the individual families and their problems, gained through living in, and serving the community on whose Draft Board you work.

In this connection, we have heard the thought advanced that "Bill Smith", who has up to this point been failing in his adjustment in the community, should go into the Army "for it will make a man of him." Unfortunately in this emergency the Army has no time for treatment. We know from the experience of 1917 and 1918 that such individuals will break down under stress.

The resources of the community, such as social and educational agencies, institutions and hospitals, should be utilized. To those of you who have been skeptical of the propriety of availing yourself of the accumulated data of community resources, it might be stated that the Selective Service Board has advocated making use of just such material.

Also of help is a simple rule of thumb. One puts the question, "Would I be willing to sleep in a pup tent with the selectee for weeks on end? Would I want him to be the other member of a difficult two-man patrol?" If the answer is definitely, "No," one is probably dealing with an individual belonging to the vocationally unfit.

Finally it is suggested that there be careful perusal of the "Medical Circular, No. 1" of which most of you have probably received copies. This gives in precise detail ways of recognizing those individuals who would be apt to break down in general service. This "Medical Circular, No. 1" was published in the Journal of the American Medical Association of May 3rd, 1941.

The Government is relying heavily on us to send material from which a real Army may be produced; an Army that can go into the field and stand up under the frightful physical and psychological punishment of modern war.

Read at the Annual Meeting of the Rhode Island Medical Society at Newport, May 28-29, 1941.

THE RHODE ISLAND MEDICAL JOURNAL

Medical Library Building
106 Francis Street, Providence, R. I.

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JOHN F. KENNEY, M.D. *ex-officio*

ALBERT H. MILLER, M.D., *Managing Editor*
28 Everett Avenue, Providence, R. I.

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JOHN GREENE, PROVIDENCE SURGEON

It has been stated on reputable authority and the statement has been quoted in the Rhode Island Medical Journal, that no physician settled in Providence until the year 1760. The opinion is strange on its face for even the most primitive peoples have occasionally felt the need for medical treatment and have met this want in one way or another. We must believe that the people of Providence were so hardy that they felt no need for medical care in their first hundred and twenty-four years or that they were so dull that they were unable to procure it.

But we need not worry further about any lack of medical care for these early settlers. On April 6, 1635, the ship "James," William Cooper, Master, sailed out of Hampton, England, bound for New England. On June 3, after a voyage of fifty-eight days, the ship arrived at Boston. Her passenger

list shows the name of John Greene, Surgeon, who had embarked with his wife and six children. He purchased or built a house at Salem where he was associated with Roger Williams. After Williams' flight in 1636, he sold the house and joined Williams at Providence. Here he secured for his home, lot No. 15 on the Main Street. He was one of the eleven men baptized by Williams and one of the original twelve members of the First Baptist Church.

In 1637 John Greene returned to Salem to settle some business affairs. Being overheard by John Endicott to make some imprudent remarks about the power of the civil magistrates, he was arrested and in spite of Roger Williams' plea to Governor Winthrop that he was "peaceable, a peace-maker and a lover of all English that visit us," the General Court of Massachusetts fined him twenty pounds, put him in jail until the fine was paid and then banished him.

George Sears Greene in his "The Greenes of Rhode Island" says that "John Greene was the first professional medical man in the Providence Plantations." He is alluded to in Goodwin's "Pilgrim Republic" as "one of the two local surgeons" at Providence in 1638. In 1643 John Greene removed to Warwick where he spent the remainder of his life. We are told, however, that "the people of Providence relied solely upon him for surgical aid" long after his departure from Providence.

John Greene, Surgeon, was prominent in the affairs of the Colony and a close friend of Roger Williams. He died in January 1659 and was buried in Warwick.

The Greene's of Rhode Island. Major General George Sears Greene. Roger Williams. James Ernst.

CHARLES VALUE CHAPIN, 1856-1941

About the end of the last century and the beginning of the current one, public health was quite generally regarded as a just barely respectable "job," routine and somnolent; in process of being nudged into unwilling half-awakeness by the eager, enterprising interloper Bacteriology, itself then only half hatched, its "sea legs" still to be found.

The Superintendent of Health and Registrar of a small city in the smallest state of the Union, on a small salary and with small facilities (except an illimitable courage and an inimitable brain) undertook single handed to introduce thinking into somnolence, clearcut objectives into blindfold routine; the vital use, not the mere piling up of vital statistics; incidentally asking of all practicing public health departments first how they practiced (which many answered) and then why, to which latter question the answers were chiefly (and probably very discreetly) silence; indeed, in public health circles Why was then very generally considered a question almost blasphemous, surely inpertinent, or ignorant, or just silly.

The writer remembers, with deep feeling, private comments by public health men on two of Chapin's earlier findings—that terminal disinfection accomplished nothing except the unwarranted conveyance of a harmful illusion of safety; that typhoid fever did not come from water but always from people, though sometimes through water, and also sometimes through other things.

The commentators disagreed usually on one point only, i.e. as to whether, within the next two years, Chapin would arrive (*a*) in an asylum or (*b*) in jail. One of these very regrettable and long-since very regretful commentators was the present writer himself [REPORTER'S NOTE.—Dr. Emerson is not the writer]. In the face then of innumerable critics all keenly watchful and nearly all confidently expectant of "inevitable" disaster, Chapin calmly abolished terminal disinfection in his own bailiwick, Providence, Rhode Island, knowing well (private letter) that if any even fortuitous, perfectly casual epidemic should occur in Providence within a year or two he would be done, professionally and personally. But the Fates were kind to public health, and terminal disinfection, not Chapin, was discarded everywhere finally.

The foremost epidemiologist of a day when epidemiology was lucky to find some person who could spell it, although very few even of these could define it; the leader ever since in teaching the fundamentals of the epidemiologies of today, even before they were generally recognized as epidemiological; most cautious and careful in research, most prompt, bold and incisive in action, Charles Value Chapin was—is—the greatest and most generously helpful of all creditors; to whom public health men have owed for more than a third of a century a growing debt that on Jan. 31, 1941 became forever, alas, quite unpayable. (Anon.)

It was the concensus that the foregoing memorial be spread on the minutes, and, at the suggestion of Dr. Harold B. Wood, Harrisburg, Pa., that a copy of it be sent to Mrs. Chapin and that it be printed in THE JOURNAL.

A Memorial presented by Dr. Haven Emerson at the request of Dr. Chesley and of members of the American Epidemiological Society, in the Section on Preventive and Industrial Medicine and Public Health. From the minutes of the ninety-second annual session of the American Medical Association, held in Cleveland, June 2-6, 1941. The Journal A. M. A., 116:26, 2870, June 28, 1941.

CORRESPONDENCE

July 15, 1941.

TO THE EDITOR,—
Dear Sir:—

As a representative of the Rhode Island Medical Society on the Board of Directors of the Blue Cross I feel compelled to comment on the letter of "Disappointed Surgeon" published in the June number of the RHODE ISLAND MEDICAL JOURNAL in which he complains that the Blue Cross patients by unnecessarily prolonging their hospital stay are occupying beds in our overcrowded hospitals which are urgently needed by other patients. He draws attention to an abuse against which every agency which sells health benefits which have been purchased in advance on a contingency basis has to fight. Commercial health and accident insurance, workmen's compensation systems, lodges, hospitals charging fixed rates for maternity care, panel medicine practice—all these beneficial agencies suffer from the universal and quite natural desire of the beneficiaries to get all they can for the money they have invested. It could hardly be expected that members of the Blue Cross would be the lone exception to this universal rule.

In a non-profit mutual benefit agency such as the Blue Cross it is the beneficiaries who in the end are themselves the sufferers. Three hundred thirty Blue Cross members were admitted to hospitals in June of this year. If each one of these patients stayed in the hospital one day more than was necessary it would cost the Blue Cross $1865.00. June is not one of the months when hospital admissions are at their peak so it is fair to assume that in a year this one unnecessary day would cost the Blue Cross approximately $25,000.00 in a year. If this $25,000.00 could be saved the Blue Cross would use it in one of two ways — to increase once more its benefits or to decrease its charges to its members.

While "Disappointed Surgeon" has drawn attention to an abuse which the Blue Cross is anxious to minimize, he has probably exaggerated its share in the present shortage of hospital beds for treating private patients. In hard times patients are anxious to save money and insist on going home at the earliest possible moment. In more prosperous times they do not have the same economic urge. Two or three extra days do not cut such a figure in their budget. The high cost and scarcity of home nursing care and domestic help and the comparatively low cost of hospital care is no doubt another factor in keeping patients (Blue Cross or otherwise) in the hospital a few days longer than is absolutely necessary.

The figures indicate that, as a matter of fact, the hospital stay of the Blue Cross patient is below the average. The annual reports of three Providence hospitals give their average hospital stay as 15 days, 11.3 days and 10 days respectively. The average hospital stay of the Blue Cross patient for the year 1940 was 8.4 days and for the first five months of 1941, 9.1 days.

The booklet given to every Blue Cross subscriber states: "Hospital care shall end at the time the subscriber is discharged as an 'in' patient by the treating physician." The Blue Cross cannot discharge private patients. The hospitals cannot discharge private patients. Only the patient's private physician can send the patient home.

The Blue Cross begs the co-operation of the doctors in reducing to a minimum the unnecessary hospitals days demanded by Blue Cross patients.

EDWARD S. BRACKETT, M.D.

SOCIAL CALLS ON PATIENT OF ANOTHER PHYSICIAN

A physician should avoid making social calls on those who are under the professional care of other physicians without the knowledge and consent of the attendant. Should such a friendly visit be made, there should be no inquiry relative to the nature of the disease or comment upon the treatment of the case, but the conversation should be on subjects other than the physical condition of the patient.

From the Code of Ethics of the A. M. A.

RHODE ISLAND MEDICAL SOCIETY

Minutes of the One Hundred and Thirtieth Annual Sessions

Continued from page 141

Committee on the Library

The Report of the Committee on the Library, in order to demonstrate the activities of the past year, must be of necessity largely statistical.

The total number of visitors to the Library was 1953, and a considerable part of these were engaged in research. From year to year, it is evident that the use of the Library for serious study is increasing, and that a larger number of individuals are making use of the facilities offered. It should be remembered in this connection that the Library is accessible to the public for consultation, and that it is frequently resorted to by the students of the various educational institutions of the State. In addition, the Staff of the Library is frequently consulted by telephone for information which can be furnished best by our Library.

It will be seen, therefore, that, while this is the Library of the Rhode Island Medical Society, its influence is felt far beyond the confines of the Society.

During the year we have received the following special gifts; From the Estate of Dr. Charles V. Chapin, books, manuscripts of most of Dr. Chapin's writings, and a series of Scrap Books, covering his entire active life — the whole being a veritable mine of information relating to Public Health matters, in Providence, the State of Rhode Island, and the civilized world. This collection is a most valuable memorial to our most distinguished Fellow.

From the Estate of George F. Allison, M.D.— 130 volumes

From Roland Hammond, M.D.— Journals

From Harlan P. Abbott, M.D.— 2 volumes

From Peter P. Chase, M.D. — 1 volume, Davenport, Coll.

From William T. Corlett, M.D.— 1 volume, Davenport, Coll.

From William T. Corlett, M.D.— 2 volumes, 1 Music Mss., Davenport, Coll.

The cataloguing has been continued, and there are now 19,838 volumes listed.

The total number of volumes in the Library, not including reprints and pamphlets, is 32,746.

135 Journals have been received through subscription and exchange.

The following Journals have been added to the list of those regularly received:

American Journal of Digestive Diseases
Anesthesiology
Journal American Dental Association
Medical Care
Southern Medical Journal
War Medicine

159 Journals (volumes) have been added by binding.

Books added:

By Purchase — 25 volumes.

By Gifts, and from the Rhode Island Medical Journal books sent for review 221,

making a total of 246 additions. This number, however, does not include many reprints and pamphlets.

To the Davenport Collection, consisting of non-medical books, written by authors who were characterized by Dr. Davenport as "literary Doctors of Medicine," there were added 8 volumes.

Respectfully submitted,

HERBERT G. PARTRIDGE, M.D.,
Chairman

Sub-Committee on Cancer

The Cancer Committee of the Rhode Island Medical Society has held three regular meetings during the year.

The chief discussion at all of these meetings centered around the compulsory reporting of cancer cases.

At a meeting held January 4, 1941, a proposed amendment to the State law embodying this proposal was read and approved. It was voted to have this amendment presented to the State Legislature through proper channels. Thanks to the very efficient efforts of Mr. John Farrell, the amendment was presented to the Legislature, was passed unanimously and became a law when signed by Governor McGrath April 10, 1941.

The last meeting of the Committee on April 25, 1941 was devoted to the wording of the card to be used by the doctors of the State in reporting cancer cases. This was undertaken at the request of Dr.

McLaughlin, Superintendent of Health. It is very much hoped that the cards will be printed and distributed, and the law be in full operation by June 1, 1941.

Respectfully submitted,
HERMAN C. PITTS, M.D.,
Chairman

Sub-Committee on Maternal Mortality

The physicians of this state have reason to be proud of the fine record they have made in 1940. Maternal Mortality in Rhode Island during the past year reached the all time low of 2.4 per 1000 live births. Such a percentage places us very near the leading state if it does not give us actual supremacy.

The Committee for the study of Maternal Mortality of the Rhode Island Medical Society has met and reviewed the work of the state investigator, Dr. Thomas A. Martin. 25 of the deaths were classified as Obstetrical and 6 cases as Non-obstetrical deaths.

The work of the Committee is continuing and it is planned to hold quarterly meetings during the coming year.

In spite of the steady reduction in Maternal Mortality that has taken place in this state in the past 8 years, further improvement is believed possible. It is the opinion of the Committee that, in 15 of the Obstetrical deaths investigated, errors of judgment on the part of the attending physician or lack of cooperation on the part of the patient were in some degree responsible for the fatal outcome.

Respectfully submitted,
JOHN G. WALSH, M.D.
Chairman

(A detailed report of the work of this committee was printed in the RHODE ISLAND MEDICAL JOURNAL for July, 1941, page 130.)

PROVIDENCE MEDICAL ASSOCIATION

May Meeting

A regular meeting of the Providence Medical Association was held at the Medical Library on Monday, May 5, 1941. The meeting was called to order by President Murray S. Danforth at 8:30 P. M.

The Secretary read the records of the previous meeting which were accepted.

The President reported that the committee consisting of Dr. Charles E. V. Kennon and John B. Ferguson had prepared the obituary tribute of the late Dr. Harry S. Flynn, and that this tribute had been placed on permanent file.

The President invited Dr. Lucius Kingman, President of the Rhode Island Medical Society, to speak relative to the annual meeting. Dr. Kingman briefly outlined the program for the 130th annual meeting of the State Medical Society to be held at Newport on May 28 and 29 and urged the attendance of all members at this important session.

The President announced the appointment of Dr. John I. Pinckney as chairman of the Committee on Tuberculosis of the Association to replace Dr. William P. Buffum, who has resigned the position. The appointment of Dr. J. Murray Beardsley as a member of the Committee on Tuberculosis was also announced.

There being no reports of cases nor presentation of specimens, the President proceeded to the reading and discussion of the papers and first introduced Dr. Frank B. Cutts, who presented the subject "Some Factors in the Diagnosis of Cardiac Infarction with Particular Reference to the Precordial Electrocardiogram."

The speaker summarized the clinical factors of importance in diagnosing this condition. A study of 69 selected autopsied patients was reported in an attempt to evaluate the information provided by the chest lead. It was concluded that the chest lead, if properly interpreted in the light of the clinical findings, often provided valuable information in making or excluding the diagnosis of infarction. The paper was discussed by Dr. Clifton B. Leech and Dr. Henry Weyler.

The second speaker of the evening was Dr. Donald B. Lindsley, Director, Psychological Laboratory, Bradley Home, and Assistant Professor of Psychology, Brown University, who spoke on "The Electroencephalogram and Its Clinical Application." Dr. Lindsley illustrated his topic with a motion picture and lantern slide demonstration.

Dr. Lindsley pointed out that the electroencephalogram registered chiefly electrical changes occurring in the cortex or outer layer of the brain. Sleep was reported to alter the character of the record. The development of the record of the normal adult was traced from early infancy. One of the chief clinical uses thus far discovered has been the recording of abnormalities in convulsive states

and certain types of behavior problems. The paper was discussed by Dr. Milton Korb.

The meeting adjourned at 10:20 P. M.

Collation was served. Attendance: 106.

Respectfully submitted,

FRANK B. CUTTS, M.D.
Secretary

AMERICAN MEDICAL ASSOCIATION
NATIONAL EDUCATION ASSOCIATION

JOINT COMMITTEES ON HEALTH PROBLEMS IN EDUCATION

CHARLES C. WILSON, M.D., *Chairman*
TEACHERS COLLEGE, COLUMBIA UNIVERSITY,
NEW YORK CITY
W. W. BAUER, M.D., *Secretary*

The importance of nutrition to the health of children is recognized at all times. At a time when all factors in health and physical fitness of the American people are receiving special emphasis as a result of interest in the national defense program, special attention is being focused upon the health and especially upon the nutrition of school children.

It is known and acknowledged that many children attending school are in an unsatisfactory nutritional condition due to many causes, among which are economic inability of parents to provide proper food; faulty family and individual eating habits; racial family and individual food preferences; traditions; and parental ignorance of the principles underlying good nutrition. It is also known and acknowledged that an undernourished child is not in the best condition for either learning or living.

In many instances the most important factor in poor nutrition is sheer inability to provide proper and sufficient food. As a means of combating this condition it has been deemed advisable in many situations to provide lunches for children at school. In some localities surplus food commodities have been made available for use in the preparation of school lunches.

For these reasons, the school lunch has come to occupy an important place as an aid to nutrition and health and, therefore, to the education of children.

The school lunch should be recognized as serving three principal functions, namely:

(a) supplementary feeding for children not properly fed at home;

(b) feeding, or supplementary feeding, for children unable to return to their homes for luncheon and unable to bring adequate lunches to school;

(c) an important aid in the teaching of nutrition.

The school lunch, therefore, should be nutritionally well conceived and as closely as possible adapted to the needs of the child.

The principal nutritional deficiencies most commonly found in American diets are calcium, vitamin B_1 (thiamine) and, in certain geographical areas, iron, iodine and the pellagra-preventive factors (nicotinic acid, riboflavin). Among underprivileged groups where money is not available for the purchase of adequate food, there may be a deficiency of all dietary essentials, including protein and even total calories.

The most practical source of calcium in the American diet is milk. This food also supplies important amounts of protein, riboflavin, nicotinic acid and other vitamins and minerals. Other foods which are important sources of minerals are eggs (phosphorus and iron), cheese (calcium and phosphorus), vegetables and fruits (many minerals including calcium and iron), and meat (iron).

The foods which supply vitamin B_1 (thiamine) are whole grain cereals or "enriched" flour products. Nuts (especially peanuts and walnuts) and legumes (dried peas and beans) also are rich sources. Milk and eggs furnish appreciable amounts if consumed in the quantities usually recommended for children's diets. Foods which are important sources of other vitamins are green leafy vegetables and butter (vitamin A), citrus and other raw fruits and vegetables, especially tomatoes (vitamin C) and meats (riboflavin and nicotinic acid; some meats such as pork are rich sources of thiamine, and glandular organs are rich sources of vitamin A).

The foods which best supply proteins include meat, milk, eggs, fish, cheese, beans, peas and soy beans. These foods are all important for their content of other dietary essentials, as well as for the protein which they supply.

School lunches should emphasize foods mentioned in the foregoing paragraphs, in attractive, palatable dishes temptingly served. For the sake of variety and attractiveness, as well as for educational purposes, school lunches should be varied

according to a sufficiently irregular schedule so that Monday will not be synonymous with carrots, Wednesday with spinach, etc. Emphasis should be placed on classes of foodstuffs rather than on specific foods, except in the case of milk. Experience should teach children how to substitute one valuable food for another, according to season, availability, price and similar factors. For example, when oranges and other citrus fruits are not available, vitamin C can be supplied by including in the diet tomatoes or tomato juice, raw cabbage and an increased proportion of other raw fruits and vegetables, and potatoes.

Food products available locally and in common use should be utilized whenever possible and their value thus demonstrated. Food preferences within food classes should be respected when possible, but encouragement should be given to the development of new food likings. An open mind toward unfamiliar foods should be cultivated.

Sufficient time should be allowed for leisurely eating; dawdling should not be encouraged.

Food should be prepared with a due regard for the preservation of its original food values. It is especially important that over-cooking and repeated warming-over should be avoided. Vegetables and fruits when cooked should be served promptly with their original juices, or the latter should be used in other parts of the menu.

One hot dish is generally considered desirable in the school lunch, at least in cool or cold weather, but what this dish contains is more important than the mere fact that it is hot.

Careful cleanliness of utensils and sanitary handling of food are essential. Seek cooperation with health departments, whose responsibility lies here as well as in public eating places. All persons handling food should have clean hands, washed immediately before coming to the preparation of food. All persons should wash their hands before eating.

In order to realize the educational possibilities of the school lunch most fully, participation by children is important. This can begin with menu planning and can include participation in marketing and preparation. Discussion of the reasons for serving certain kinds of food and for choosing certain methods of preparation is useful. Teaching units can and should be correlated with the school lunch.

The example of the teacher also is a potent factor in realizing the educational possibilities of the school lunch.

UNITED CHINA RELIEF

American financial help has assisted in the creation in China of one of the most remarkable medical relief corps existing in any warring country, according to Dr. Donald D. Van Slyke, president of the American Bureau for Medical Aid to China, in a report issued by United China Relief in connection with the fifth anniversary of the start of the Sino-Japanese war.

Scores of mobile medical units that are situated close to the Chinese fighting lines, and that can be dismantled and moved within an hour's notice, form the heart of the Chinese Red Cross Relief Corps, said Dr. Van Slyke. The total medical staff attached to these medical units totals 2,800, and of this number about 1200 men and women serve as stretcher bearers, transporting the wounded from the fighting front.

"Organization of this medical relief corps was made necessary by the Chinese army tactics of 'defense depth' which were adopted after the fall of Hankow," said Dr. Van Slyke. "Chinese troops at the front were scattered over a broad belt that was, in some cases, 100 miles deep. All roads and means of communication that could be used by the enemy's mechanized forces in these areas were destroyed, and ambulances were useless in these roadless areas. The army of stretcher bearers, many of them university students, has solved this problem."

Each of the mobile units has a staff consisting of a doctor, a nurse, four nurses' helpers, a cook, an orderly and seven orderlies. Each medical unit can accommodate 50 wounded soldiers.

The Chinese Red Cross Medical Relief Corps was organized by Scottish-trained, Dr. Robert K. S. Lim, who served for three years with the Indian Medical Unit in France during the first world war. On his return to China, he organized medical corps for training medical students and young doctors for Red Cross work and was serving as professor of physiology at Peiping Union Medical College when war broke out.

The American Bureau for Medical Aid to China has sent 159 ambulances and has provided gasoline and spare parts to keep them running. It has made regular shipments of drugs and vaccines to check the spread of bubonic plague, malaria and cholera. It has provided a complete vaccine-producing plant, now functioning in Kweiyang, and has supplied training schools with X-ray equipment, microscopes, a chemical laboratory, books, and surgical instruments; and has financed construction of five health centers.

Today, Dr. Lim's medical relief corps consists of 360 medical technicians including pharmacists, 181 doctors, 176 nurses, 15 sanitary engineers, 95 sanitary technicians, 19 X-ray technicians, 7 laboratory technicians, 23 dispensers, 15 mechanical engineers, 296 truck and ambulance drivers, and 401 office workers.

One of the Medical Corps most interesting activities has been encouragement given to farmers to remain on their farms growing crops even though these farms lie close behind the fighting zone. In many sectors, half the food for the Chinese soldiers is being produced in the war area itself.

"The Chinese death rate has been whittled down by other American aid in the form of ambulances, vitamins, and trucks for evacuation work. In speeding such help, the United China Relief has done much to sustain Old China long enough for Dr. Lim and others like him to create the new Free China."

Beginning July 1, The American Bureau for Medical Aid to China, through United China Relief, will send $5,000 a month to China, to support Dr. Lim's training schools and orthopedic centers, and to supplement the contributions of the American Red Cross.

RANTEX FACE MASKS

The Holland-Rantos Company have been appointed exclusive distributors for Rantex, the newest development for surgical masks and caps—a patented fibre product which is insoluble in live steam, boiling water or common solvents. A magnification of Rantex shows that it is 176 times more protective than a single layer of gauze. As a result, it provides masks and caps which are exceptionally cool, comfortable, light and free from irritating lint or yarn. They are inexpensive enough to be discarded after a single use; yet they can be autoclaved or sterilized.

The masks are shaped to fit the face; the caps are well tailored. The masks and caps are already being used in many hospitals—including Doctors Hospital in New York, University of Pennsylvania Graduate Hospital in Philadelphia, United States Marine Hospital in Boston, Wisconsin General Hospital, University of Wisconsin in Madison, Wis., and the East Oakland Hospital in Oakland, Calif.

BOOK REVIEW

SCIENCE AND SEIZURES. By William G. Lennox, M.D., pp. 258, New York, Harper & Bros., 1941.

Dr. Lennox knows as much and probably more about epilepsy and migrane than any other physician in the country. In this short book he has written for the general practitioner and intelligent layman an informative and entertaining treatise on the subject of these two disorders. In an introductory note Dr. Lennox states that the royalties from the sale of the book will be devoted to some aspect of educational or research in relation to seizures.

The author points out that the average doctor has under his care perhaps five patients with convulsive disorders and fifty sufferers from sick headaches, but that it is often difficult for him to have available in concise form the new facts which will aid him in the treatment of these individuals.

Although convulsive disorders in particular, because of their dramatic nature, have attracted medical attention for centuries, the general public deals with them in an attitude of fear. Educating the public to look upon convulsive disorders as they do upon other medical illness should give the estimated half million sufferers from these disorders in the United States new opportunities for a satisfactory existence. Dr. Lennox describes the various types of seizures, including petit mal, grand mal, Jacksonian attacks, and psychic seizures; includes a readable discussion of the various statistics on the incidence of the disorders and then goes on to discuss diagnosis and treatment. He stresses particularly the value of the electroencephalogram in establishing an accurate diagnosis. In treatment he emphasizes the psychological and social assistance which most epileptic patients require, and in regard to medical treatment stresses the use of phenobarbital, bromides and Dilantin. Institutional care is critically evaluated.

The latter third of the book concerned with migrane is discussed much along the same lines as were the convulsive disorders. A brief bibliography of books and periodical literature dealing with both subjects is appended.

This book is concise, practical, and authoritative, and its easily readable style will make it entertaining reading to every medical man and it should be instructive to all those who have occasion to treat children or adults with convulsive disorders or migrainous headaches.

CHARLES BRADLEY, M.D.